Xerox Docket No. D/A0466

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Salah AIT-MOKHTAR et al.   Group Art Unit: 2654

Application No.: 09/738,319   Examiner: V. Harper

Filed: December 18, 2000   Docket No.:   108169

For: METHOD AND APPARATUS FOR GENERATING NORMALIZED
        REPRESENTATIONS OF STRINGS

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the February 23, 2004 Examiner's Answer, please consider the following

remarks.

REMARKS

Examiner's Answer Argument 11.4

Starting on page 10, the Examiner's Answer attempts to clarify the portion of Liddy which allegedly discloses the feature of "skeletising each of the first representations to generate a corresponding second representation for each of the input strings; said skeletising step replacing the linguistic information with abstract variables in each of the second representations," as recited in claim 1. To this end, the Examiner cites the later section (column 15, line 63-column 16, line 10), as clarifying the earlier cited section (column 6, lines 15-20, Figures 1 and 2; column 6, line 63-col. 7, line 5).

These portions describe the disambiguator operation using the MCGD module 160, the MCG-MHCM module 170, and the MHCD module 180. However, as disclosed in column 11, lines 42-44, the output of the MCGD module 160 is a fully-tagged text stream with a single multilingual concept group for each word in the input text. As disclosed in column 14, lines 28-32, the output of the MCG-MHCM module 170 is a tagged, native language text stream with unique, monolingual (English), hierarchical concept categories assigned to each identified substantive word. Lastly, as disclosed in column 14, lines 65-67, the output of the MHCD module 180 is a text stream with disambiguated monolingual categories assigned to each substantive word.

Therefore, none of modules 160, 170 or 180 replaces linguistic information with abstract variables. Instead, these modules add additional information such as concept groupings, monolingual categories and disambiguated monolingual categories to each substantive word.

Examiner's Answer Argument 11.5

Starting on page 11, the Examiner's Answer clarifies that the module which allegedly performs the replacement of the linguistic information is the monolingual concept vector MCVG module 190. This module is described in column 15, lines 3-6 as accepting "a text stream with single monolingual category assigned to each substantive word in a text, and produces a fixed-dimension vector representation of the concept-level contents of the text." The Examiner's position thus appears to be that the MCVG module 190 replaces linguistic information with other information, the other information being the fixed-dimension vector.

However, Appellants submit that claim 1 does not recite replacing the linguistic information with other information; rather, claim 1 recites "replacing the linguistic information with abstract variables." Appellants submit that the "fixed dimension vector representation of the concept level contents of the text" is in no way analogous to an abstract variable. The fixed dimension vector is a fixed value as shown in Figures 5 and 6 which corresponds specifically to a single monolingual category, as shown in Figure 5.

The American Heritage Dictionary 2000 Edition, defines a variable as "a quantity capable of assuming any of a set of values." The fixed dimension vectors of Liddy are not capable of assuming any of a set of values; instead, they have a very specific value which corresponds to a specific monolingual category. Furthermore, the fixed dimension vector is required to have a single value, in order to properly identify the concept level contents of the text to which it refers. To interpret the fixed dimension vector as a variable quantity would render the apparatus disclosed in Liddy inoperable for its stated purpose, which is to represent the concept level contents of text in order to allow document retrieval in a desired one of a plurality of supported languages.

Examiner's Answer Argument 11.6

Beginning on page 12, the Examiner's Answer draws a distinction between an "abstract data type" and an "abstract variable," asserting that "a variable is an instance of a data type." However, Appellants submit that a variable is more than an instance of a data type. A variable is a specific sort of data type which is a quantity capable of assuming any of a set of values. The Examiner's Answer asserts that the codes of Liddy are abstract variables referring to Figure 5 on the far right. However, based on the arguments above and on the cited portions of Liddy, Appellants submit that the codes are fixed dimension vectors, not abstract variables. Nowhere in Liddy are the concept codes disclosed to be abstract variables, and to interpret them to be abstract variables would render Liddy inoperable for its intended purpose, as discussed above.

According to Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Appellants submit that Liddy does not disclose, either expressly or inherently, "skeletising each of the first representations to generate a corresponding second representation for each of the input strings; said skeletising step replacing the linguistic information with abstract variables in each of the second representations," as recited in claim 1.

Examiner's Answer Argument 11.7

Beginning on page 13, the Examiner's Answer argues that the codes generated in Liddy and shown for example in Figure 5 are abstract, in that they are defined in terms of the information that they can contain. While the codes may arguably be abstract in that respect,

Appellants submit that the codes are definitely not variables. Therefore, the "disambiguated concept codes" cannot correspond to "abstract variables" as recited in the claims.

Examiner's Answer Arguments 11.8 and 11.9

Starting on page 14, the Examiner's Answer indicates that the grounds for rejection were not switched. Based on this section, and on the above paragraphs, Appellants understand the Examiner's rejection to be based on the fixed-dimension vectors, representing the disambiguated concept codes, as corresponding to the recited "abstract variables." However, based on the arguments set forth above, Appellants maintain that neither the fixed-dimension vectors nor the disambiguated concept codes can reasonably be considered to be "abstract variables." Therefore, this feature of claim 1 is not disclosed, either expressly or inherently, anywhere in Liddy.

Examiner's Answer Argument 11.10

On page 15, the Examiner's Answer addresses the issue of motivation to combine the applied references. In this regard, the Examiner's Answer states that "the machine learning taught by Collins improved the parsing results (i.e. the representation), and as a consequence of the improved representation, are improvements in precision and recall." Appellants respectfully submit that this is merely a statement of alleged benefits of Collins, and does not address how such benefits could be realized by the alleged modification of Liddy.

Appellants submit that Collins discloses an apparatus which "re-ranks the output of an existing probabilistic parser. The base parser produces a set of candidate parses for each input sentence, with associated probabilities that define an initial ranking of these parses." (See Abstract).

The apparatus described in Liddy does not produce a set of candidate parses, but only produces a single second representation for each of the input strings. Further, Liddy does not

generate associated probabilities that define an initial ranking of these candidate parses of this second representation. Therefore, it is not clear how the teachings of Collins can be applied to the disclosure of Liddy, without changing the mode of operation of Liddy to provide at least the set of candidate parses. According to MPEP 2143.01 "if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Accordingly, the rejection under 35 U.S.C. §103(a) over Liddy in view of Collins is improper because the asserted combination requires changing the mode of operation of Liddy.

Moreover, Appellants submit that Liddy does not anticipate claim 1 for the reasons cited above. Collins does not, and was not applied to, provide the features of claim 1 missing from Liddy as discussed above. Accordingly, the rejection under 35 U.S.C. §103(a) over Liddy in view of Collins is improper because, even if combined, the asserted combination of references does not disclose, teach or suggest every feature recited in claim 1.

Examiner's Answer Arguments 11.11 and 11.12

On pages 16 and 18, the Examiner's Answer maintains that the motivation for combining columns with Liddy is to "improve the parsing results (i.e., the representation)." However, Appellants submit that based on the arguments set forth above, Collins cannot be combined with Liddy without changing the mode of operation of Liddy. Therefore, the teachings of the references are not sufficient to render the claims *prima facie* obvious.

Examiner's Answer Argument 11.14

On page 19, the Examiner's Answer simply reasserts arguments set forth in paragraphs 4-8 of the Examiner's Answer. Appellants response in this regard is set forth above.

Conclusion

In view of the foregoing, Appellants respectfully submit that the final rejections of

record are unsupported and unjustified, and the Honorable Board is requested to reverse those

rejections and return the application to the Examiner to pass this case to issue.

Respectfully submitted,

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Date: April 23, 2004

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